**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

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| Rodney George WADE | Examiner: C. J. Price |
| Serial No.: 10/688,886 | Group Art Unit: 3753 |
| Filed: October 21, 2003 | Confirmation No. 2767 |

Title: FIRST FLUSH WATER DIVERTER

**(A) Appeal Brief**

**Mail Stop: Appeal Brief**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Action dated February 22, 2007, Appellant submits an Appeal Brief herewith.

Appellant filed an Appeal Brief on June 19, 2007 and paid the required fees at the time. The required fees for the current Appeal Brief is $255.00 (small entity) minus the fee of $250.00 paid on June 19, 2007 leaving a balance of $5.00, which is currently due for this paper. If necessary, the Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

## (B) Table of Contents

## (C) Real Parties In Interest

The real party in interest in the present application is the named inventor, Rodney George Wade.

## (D) Related Appeals And Interference

There are no known related appeals or interferences.

## (E) Status of the Claims

Claims 1-9 are on appeal, claim 10 having been cancelled.

Claims 1-9 have been rejected. A detailed status of the claims is presented as follows:

Claims 1, 2, 3, 5, 8 and 9 are finally rejected under 35 U.S.C. §103(a) as being unpatentable over Wade (AU-B-16551/95).

Claims 4 and 6 are finally rejected under 35 U.S.C. §103(a) as being unpatentable over Wade in view of Sill (U.S. 1,460,613).

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Wade (AU-B-16551/95) in view of Wallis (U.S. 5,407,091).

## (F) Status of Amendments

All of Appellant's amendments have been entered.

## (G) Summary of the Invention

**Single Independent Claim 1:**

In claim 1, the first flush diverter 10 (page 6, line 9) of the present invention diverts rainwater by using a T-piece 13 (page 6, line 10) inserted in a water line (piping 16)(page 6, line 13), which transports water from a roof gutter (not shown) to (piping 17)(page 6, line 14) that is connected to a storage or usage area (fresh water collection tank page 6, line 15). The T-piece 13 has an outlet at circular seat 18 (page 6, line 15) that opens into a rainwater collection chamber 14 (page 6, line 19) that collects the initial flow of dirty rainwater that has washed off the roof of the building. The collection chamber 14 (page 6, line 11) has a drain (outlet 15)(page 6, line 11), which continually empties the collection chamber as it fills from the T-piece 13 through the opening provided by the circular seat 18 (page 6, line 15). Once the collection chamber 14 fills with rainwater, a float 19 (page 6, line 16) seals the opening defined by the circular seat 18 so that substantially all of the rainwater flows through pipe 17 (page 6, line 14) to the storage or usage area (fresh water collection tank page 6, line 15).

Further with respect to claim 1, the present invention determines the carrying capacity of the collection chamber 14 (page 6, line 19) to adjust for a local pollution factor (PF) (page 4, line 6) wherein the factor varies between 0.0005 (page 4, line 7) for light pollution locations (no trees that drop debris and have insects and birds) to 0.002 (page 4, line 8) for high pollution locations (which have trees and thus fewer insects and birds). The pollution factor (PF) is multiplied by the roof area (RA) (page 4, line 5) and then by 1000 (page 4, line 1) to determine the carrying capacity (DF) of the collection chamber 14 in liters. In other words, DF=RA x PF x 1000 (page 4, line 1).

**Dependent claims 2-9**

In claim 2 the collection chamber is a pvc tube having a diameter of approximately 300 mm (page 7, line 7). To determine the length of the pipe and thus the carrying capacity according to the formula DF=RA x PF x 1000 (page 4, line 1), one need only insert the area of the roof (RA), select the appropriate pollution factor (PF), multiply the product by 1000 and divide by 300mm. The PVC pipe (page 7, line 7) is then cut to this determined length and one has a first flush water diverter in accordance with claim 2 of the present invention, wherein the collection chamber 14 is correctly sized for roof area (RA) and pollution factor (PF).

In claim 3 the length is shown to be in a selected range of about 225mm to about 2005mm (page 4, line 26 - page 5, line 7). Thus, a correctly sized collection chamber 14 (page 6, line 11) for a specific site is readily fabricated by simply cutting off a length of pipe from a stock supply of 300mm pipe (page 7, line 7).

Claim 4 recites that the collection (chamber 14, page 6, line 11) is adapted for support on a stand (page 6, line 11) or a post 26 (page 6, line 28).

In claim 5, a hose connection 25 (page 6, line 23) is fitted to a flow control valve 24 (page 6, line 22).

Claims 6 and 7 recite respectively that a conical cap 20 (page 6, line 17) connects the T-piece 13 to the collection chamber 14 (page 6, lines 10-11) and that a conical receptacle 21 (page 6, line 20) is fitted to the lower end of the collection chamber 14 at the outlet 15 (page 6, line 11, Fig. 1).

Claim 8 recites the filter screen 22 (page 6, line 2) while Claim 9 recites a ball float 19 (page 6, line 16).

## (H) Grounds Of Rejection To Be Reviewed On Appeal

The grounds of rejection to be reviewed are as follows:

the rejection of claims 1, 2, 3, 5, 8 and 9 under 35 U.S.C. §103(a) as being unpatentable over Wade '551;

the rejection of claims 4 and 6 under 35 U.S.C. §103(a) as being unpatentable over Wade, as applied to claim 1, in view of Sill '613, and

the rejection of claim 7 under 35 U.S.C. §103(a) as being unpatentable over Wade in view of Wallis '091.

## (I) Arguments

**Rejections Under 35 U.S.C. §103(a)**

Claims 1, 2, 3, 5, 8 and 9 are patentable over Wade '551.

Considering Wade '835, which is both Appellant's prior art (APA) and Appellant's patent, it is pointed out that Appellant recites in single independent claim 1 that the collection chamber 14 has a diameter "which is an integral multiple of the diameter of the T-piece inlet (16)". This is clearly not the case with Wade '835 because in Wade '835 the collection chamber 14 appears to have the same diameter as the corresponding T-piece inlet structure 16, whereas in Appellant's invention the collection chamber is always larger. Moreover, in Appellant's claimed invention the pollution factor (PF), which is determined on site, varies between 0.0005 for light pollution locations and 0.002 for heavy pollution locations. There is no consideration at all in Wade '835 of a pollution factor (PF) such as Appellant's claimed pollution factor (PF). The pollution factor determines the rainwater carrying capacity (DF) of the collection chamber 14, which capacity is measured in liters and affects the selected diameter and length of the collection chamber 14. Wade '835 is not simultaneously configurable for both roof area (RA) and pollution factor (PF), as in the case with Appellant's claimed invention. It is respectfully submitted that the differences between Appellant's claimed invention in the application and Appellant's disclosure in his Australian Patent, Wade '835, are legion. Appellant further addresses this rejection below in more detail.

In the Office Action, the Examiner stated first that:

> "At the time the invention was made it would have been obvious matter of design choice to one of ordinary skill in the art to utilize a pipe diameter with an integral multiple other than one, since such items are readily available."

The difference is readily made apparent from the drawings in which Appellant's claimed limitations and the disclosure of Wade '835 are shown below.

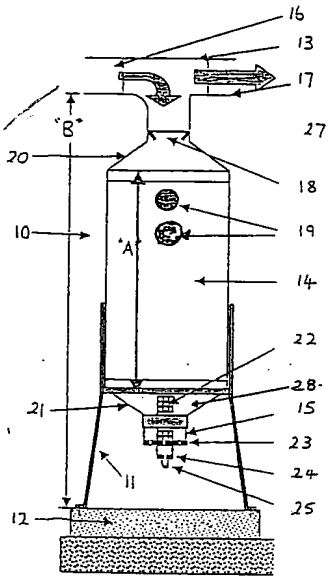



FIG. 1

**Appellant**

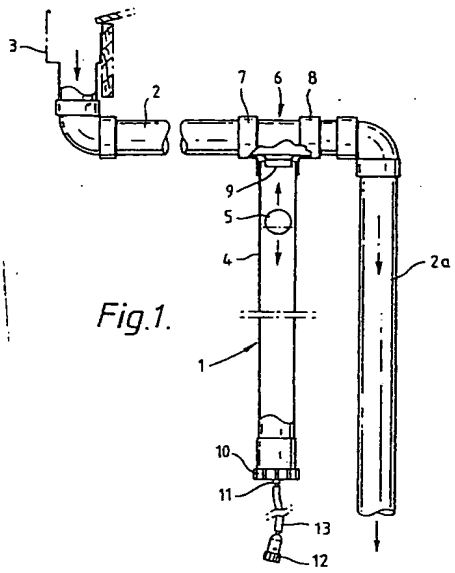



Fig.1.

**Wade '835**

Clearly, this is not a distinction without a difference. Appellant is reciting a collection chamber (14) while the Examiner misnames the claimed collection chamber (14), and refers to it as a "pipe" in order to justify the conclusion that "such items" (i.e., pipes) are "readily available." Appellant respectfully submits that the rejection is based on a non sequitur. Moreover, the Examiner is suggesting that a newly invented device or article is rendered obvious simply because one or more of the components used in its construction was/were available when the invention was made. This is not correct, otherwise patent protection would be denied for any new invention if one or more available items were used in its construction. Practically, all inventions are combinations of existing components.

The Examiner states second that:

> "Wade is silent to the claimed limitation regarding the rainwater carrying capacity formula and pollution factor, the said collection chamber having a rainwater carrying capacity defined by the formula: DF = RA x PF where DF is the rainwater carrying capacity, or diversion factor, measured in litres, RA is tile [sic] associated roof area measured in square meters, PF is the Pollution Factor for the roof location which is determined on site and varies between 0.0005 for light pollution locations and 0.002 for heavy pollution locations."

The Examiner attempts to justify this rejection based on obviousness as follows:

> Wade discloses on page 6, lines 6-19, the tests were conducted "to optimize the dimensions of the apparatus exemplified above for use in a domestic water collection system", with consideration given for the roof area and for a pollution factor, "To simulate bird and animal droppings, plastic beads and styrene shapes of equivalent density were used". Wade therefore discloses the optimization of a rainwater diverter tank on the basis of foreign matter in the equation and roof area, therefore it would have been obvious for a skilled artisan to optimize the size of the collection chamber based on the roof size and environmental surroundings based on some type of relative location for instance in heavy or light pollution areas, in order to determine the size of the collection chamber."

Appellant strongly disagrees with the Examiner's assertion that the passage on page 6, lines 6-19 of Wade '835 render the present invention obvious. The passage in question reads as follows:

> Tests were conducted to optimize the dimensions of the apparatus exemplified above for use in a domestic water collection system. In a typical house, there is an average of one downpipe per 50 to 70 $m^2$ of roof area. Testing was carried out using 70$m^2$ of roof area directed through a single gutter outlet to the apparatus. To simulate bird and animal droppings, plastic beads and styrene shapes of equivalent density were used.
>
> Eight consecutive tests were carried out and the results indicated that between 7 and 8 litres of water were required to flush the roof area and gutter. From these tests, it was calculated that for an apparatus having a 90

> mm diameter fall pipe, a fall pipe length of 1,400 mm is required for optimal results.

Wade's passage suggest that between 7 and 8 litres of water are required to flush a roof area of $70m^2$. However, the passage provides no indication whatsoever as to the relationship between the amount of water required to be flushed and the roof area (i.e., it provides absolutely no insight as to why 7-8 litres is the optimal amount for a roof area of $700m^2$). Furthermore, the passage simply states that plastic beads and suitably dense styrene shapes were used to simulate bird and animal droppings. There is absolutely no disclosure in the passage that one skilled in the art would glean that the amount of water required to be flushed may vary between areas of differing levels of roof contamination, i.e., light and heavy pollution.

What the Examiner is effectively saying is that both of the following things, in combination, would have been obvious to one skilled in the art, simply from reading the above passage:

> 1) Use of a pollution factor of between 0.0005 (light pollution locations) and 0.0002 (heavy pollution locations), and
>
> 2) Determining the correct carrying capacity for the collection chamber in a first flush diverter by multiplying the applicable roof area by the claimed pollution factor.

Clearly, the Examiner's rejection is incorrect. How could the use of a pollution factor in the specifically enumerated range 0.0005-0.002 have been obvious in light of the above passage? The passage has no hint of Appellant's concept of flushing different amounts of water depending on the severity of contamination, let alone the specific formulas and quantities to be used in determining the appropriate amount.

For these reasons, it is respectfully submitted that the invention, as currently defined in claim 1, is patentable over Wade. It is therefore respectfully requested that the rejection of single independent claim 1 as obvious in view of Wade be withdrawn.

In that claims 2-9 depend from claim 1, they further limit claim 1 and are therefore allowable for the same reasons as claim 1. For this reason alone, it is respectfully submitted that since all claims in this application are necessarily allowable, all further rejections should be withdrawn and this application passed to issue.

Not withstanding the allowability of single independent claim 1, the Examiner has rejected claims 4 and 6 as unpatenable over Wade '551 in view of Sill '613. Appellant respectfully traverses this rejection. In justifying this rejection the Examiner states:

> "Sill teaches the use of a conical cap (17, the cone shape is estimated to have an inclined angle of about 160 degrees, shown best in Fig. 3) connecting the T piece (10) to the collection chamber, as shown in Fig. 2.
>
> In view of the Sill patent, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the collection chamber of Wade with the conical cap of Sill, in order to provide a collection chamber cap that extends the life of the chamber by not rusting as quickly as a surface which [sic] flat."

While Sill '613 does teach a stand, Sill '613 fails to cure the deficiency of Wade '551 regarding the pollution factor range and the carrying capacity for the collection chambers defined by the Formula: DF = RA x PF x 1000, clearly set froth in claim 1.

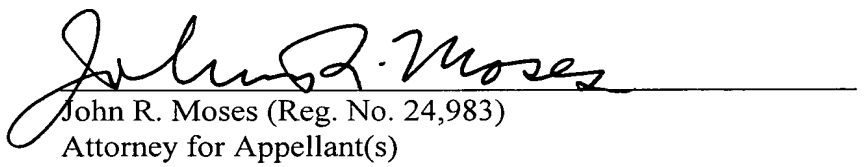
Moreover, the purpose of Appellant's conical cap recited in claim 6 has absolutely nothing to do with rusting or longevity of the chamber. Rather, the upwardly converging internal wall of the conical cap guides the float into engagement with the seal in order to seal the T piece inlet. As the Examiner states, the angle of inclination of the cap in Sill '613 is about 160 degrees. This is too flat to provide the necessary guiding function required in the present invention. Consequently, the cap in Sill '613 would not work in the present invention. Therefore, contrary to what the Examiner has said, we respectfully submit that claim 6 would not be obvious in view of Sill and Wade, and should also be allowed for this reason (as well as for the reasons explained above).

Claim 7 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Wade '095 in view of Wallis '091. Appellant respectfully traverses this rejection.

Again, whatever else Wallis '091 teaches, Wallis '091 fails to cure the deficiencies of Wade '095 as a reference against Appellant's claims. The conical receptacle wall of Wallis '091 at the bottom of the diverter tank 13 simply does not teach what is missing from Wade '095 in that there is no teaching in Wallis '091 of the pollution factor (PF) range of 0.0005 for light pollution and 0.002 for heavy pollution, as well as no definition of carrying capacity for the collection chamber determined by the Formula DF = RA x PF x 1000, clearly set forth in parent claim 1.

For the foregoing reasons, Appellant respectfully requests that the rejections of Appellant's claims 1-9 be reversed.

Respectfully submitted,



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## (J) Claims Appendix

1. A first flush water diverter comprising a T-piece with associated rainwater collection chamber, which T-piece is adapted for connection in a rainwater flow path to intercept the flow of rainwater from a roof into a down pipe or directly to a storage or usage area, said collection chamber including a float which seals on a seat adjacent a T-piece inlet to the collection chamber when the collection chamber is charged with rainwater and having a diameter which is an integral multiple of the diameter of the T-piece inlet, the said collection chamber having a rainwater carrying capacity defined by the formula: DF = RA x PF x 1000 where DF is the rainwater carrying capacity, or diversion factor, measured in liters, RA is the associated roof area measured in square meters, PF is the Pollution Factor for the roof location which is determined on site and varies between 0.0005 for light pollution locations and 0.002 for heavy pollution locations, and wherein said collection chamber includes an outlet and associated flow control valve to regulate the flow of diverted rainwater from the collection chamber.

2. A first flush water diverter as claimed in claim 1, wherein the collection chamber is a pvc tube having a diameter of approximately 300mm.

3. A first flush water diverter as claimed in claim 2, wherein the pvc tube has a length of between about 225mm and 2005mm.

4. A first flush water diverter as claimed in claim 1, wherein the collection chamber is adapted for support on a stand or for connection to a wall or post.

5. A first flush water diverter as claimed in claim 1 wherein a hose connection-is fitted to the flow control valve.

6. A first flush water diverter as claimed in claim 1, wherein a conical cap connects the T-piece to the collection chamber.

7. A first flush water diverter as claimed in claim 1, wherein a conical receptacle is fitted to the lower end of the collection chamber which houses the outlet.

8. A first flush water diverter as claimed in claim 1, wherein a filter screen is provided at the outlet.

9. A first flush water diverter as claimed in claim 1, wherein the float is at least one a ball which freely floats on the surface of the rainwater which collects in the collection chamber.

## (K) Evidence of Appendix

None

## (L) Related Proceedings Appendix

None